

IN THE CLAIMS

Please substitute the following amended claims for corresponding claims previously presented. A copy of the amended claims showing current revisions is attached.

3. A vaccine according to claim 1 wherein the heterologous antigen can induce immunogenicity against a pathogenic microorganism, optionally a heterologous antigen specific for a mucosa colonising pathogen or pathogen entering the body via the mucosa, such as via the oral route.

4. A vaccine according to claim 1 wherein the heterologous antigen induces immunogenicity against a pathogenic microorganism colonising the gastrointestinal tract.

5. A vaccine according to claim 1 wherein the pathogenic microorganism is herpes virus, rubella virus, influenza virus, mumps virus, measles virus, poliomyelitis Virus, rotavirus, respiratory syncytial virus, *Campylobacter* species, *Chiamydial* organisms, species of the genus *Cryptosporidium*, cytomegalovirus, human immounodeficiency virus, *Actinomyces* species, *Entamoeba histolytica*, arenaviruses, arboviruses, *Clostridium botulinum*, species of the genus *Candida*, *Vibrio cholera*, *Cryptococcus neoformans*, EHEC strains of *E.coli* O157:H7, O26:H11, O111:H8 and O104:H21, ETEC strains of *E.coli*, strains of *E. coli* shown to possess enteroinvasiveness (EIEC), EPEC strains of *E.coli* EA⁺EC strains of *E.coli*, DAEC strains of *E.coli*, filoviridae, parvovirus, *Filarioidea*, *Staphylococcus aureus*, species of the genus

Clostridium perfringens, Helicobacter pylori, Caliciviruses, Giardia lamblia, Neisseria gonorrhoeae, hantaviruses, hepatitis viruses types A, B, C, D, E, Legionellae strains, Mycobacterium leprae, Listeria monocytogenes, species of the genus Clostridium perfringens, Borrelia burgdorferi, Pseudomonas pseudomallei, Epstein Barr virus, Onchocerca volvulus, Poxvirus, Bordetella pertussis, Yersinia pestis, Coxiella burnetti, rabies virus, Treponema pallidum, Mycobacterium tuberculosis, Salmonella typhi, a (eukaryotic parasite) causing malaria, pneumocystis pneumonia, an agent causing toxoplasmosis, or any combination thereof.

6. A vaccine according to claim 1 which elicits a protective response against a

rotavirus, respiratory syncytial virus, Mycobacterium tuberculosis, human

α2 immunodeficiency virus, *E.coli*, *Vibrio cholera*, streptococci and/or chlamydia.

7. A vaccine according to claim 1 wherein the heterologous antigen is a viral

and/or bacterial antigen optionally a (gp 160) envelope protein of the HJV virus, a

surface glycoprotein of a *Leishmania* parasite, Shiga-like toxin, *Shigella*

lipopolysaccharide antigen, *Escherichia coli* fimbrial antigen, a CFA antigen of an

enterotoxigenic *Escherichia coli* strain, anthrax toxin, pertussis toxin, tetanus toxin.

8. A vaccine according to claim 1 wherein the heterologous antigen is a

human allergen or the heterologous antigen is specific for tetanus.

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9. A vaccine according to claim 1 which can induce protective immunogenicity.

10. A vaccine according to claim 1 formulated as a single dose vaccine.

11. A vaccine according to claim 1 wherein the recombinant *Lactobacillus plantarum* expresses the heterologous antigen intracellularly and/or on the cell surface to a degree exceeding that of *Lactobacillus plantarum* 80 expressing β -galactosidase.

12. A vaccine according to claim 1 wherein the recombinant *Lactobacillus plantarum* comprises a homologous expression and/or secretion signal, optionally in an expression vector for *Lactobacilli*, preferably for *Lactobacillus plantarum*.
②

13. A vaccine according to claim 1 wherein the recombinant *Lactobacillus plantarum* strain exhibits a persistence (in the individual vaccinated) exceeding 5 days, preferably exceeding 9 days, suitably more than 15 or even 20 days

14. A vaccine according to claim 1 wherein the recombinant *Lactobacillus plantarum* exhibits a persistence longer than that of *L. plantarum* 80, preferably longer than that of *L. plantarum* NCIMB 8826, under equivalent conditions.

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15. A vaccine according to claim 1 formulated administration to a human, such as an infant, immunocompromised person, elderly person or a normally healthy infant, child or adult.

16. A vaccine according to claim 1 wherein the recombinant *Lactobacillus plantarum* is a recombinant *Lactobacillus plantarum* 256.

Q2
17. A vaccine according to claim 1 wherein the vaccine comprises at least one adjuvant or a pharmacologically acceptable carrier.

18. A recombinant *Lactobacillus plantarum*, optionally a recombinant strain of *Lactobacillus plantarum* 256, as defined in vaccine claim 1.

Q3
23. A *Lactobacillus* organism according to claim 18 which is *L. plantarum* or is for use in a vaccine.

Q4
25. A bacterium according to claim 19 for use in a method of prophylaxis or treatment of the human or animal body.

Q5
28. The use of a bacterium according to claim 19 in the manufacture of a vaccine.

all
30. The use according to claim 26 for treating or preventing tetanus.